

## Editorial

Some years ago Leo Klopfer remarked that enthusiasm for incorporating historical and philosophical matters into science education periodically surfaces, but then withers away. In his words, 'Proposals for weaving the history and nature of science into the teaching of science in schools and colleges have a history of more than sixty years. Over this long period, curriculum specialists developed various kinds of instructional materials that entwine science and the history of science . . . Yet, each of these webs was fragile; they rarely persisted for very long and left little trace on the science education landscape'.

The International History, Philosophy and Science Teaching Group, through this journal, its conferences, and assorted publications, is doing its best to ensure that the present enthusiasm for a contextual or liberal approach to the teaching of the sciences, which is manifest in many different countries, does not similarly wither away.

The Group's core idea is that the learning *of* science should be accompanied by learning *about* science – its history, its method, its methodology, its relation to culture and society, its relation to other forms of knowledge and intellectual activity, and so on. This second type of learning is promoted not merely as something else to learn (interesting though it is) but as an integral part of the educational rationale for studying science.

Science should not be an inert study, it should affect and transform an individual. Likewise the widespread study of science in a society – the growth of scientific literacy – should transform and enhance the culture of a society. But these personal and social transformations do not occur as a result of learning Newton's laws, or solving textbook end-of-chapter exercises, or doing laboratory exercises – the basics of a science programme. It is the something extra, the learning *about* science, or the internalising of a scientific approach to nature, that brings about these transformations.

But everyone needs to recognise that in the Western world, or at least the Anglo part of it, there is an enormous struggle to have even the basics of science learnt. A 1993 study in New Zealand of 691 school leavers (age 18 years or thereabouts) entering the Primary Teaching Programme at the Auckland College of Education over the previous two years showed that 27% could not work out the length of a pencil when its end was placed against the 2 cm mark on a ruler, and that 40% could not even identify what one did – multiply, subtract, add, divide – to ascertain the cost of a litre of petrol given the number of litres put into a car and the total bill for the petrol. Staggeringly all these students had been in school for twelve years. Likewise, the levels of illiteracy and innumeracy in the U.S. are as appalling as they are well documented, with Jonathon Kozol reporting in

one publication that 15% of urban high school graduates could not read what was on their testamur.

We know that science literacy cannot be divorced from general literacy. If children cannot read, if they cannot write, if they cannot add up, or do division, or manipulate simple equations, if they are incapable of logical thought, if they are watching 20,000 hours of mostly 'brain dead' television before they get to college (as the average U.S. student does), if there is no love of learning – then expectations of even basic, let alone more sophisticated, scientific literacy are misplaced.

The threat that widespread illiteracy and innumeracy pose for liberal approaches to science is not so much the old one of: 'why bother with the icing, surely the cake is good enough?' It is rather, 'we cannot afford to bother about the icing because there is no cake'.

The International Group affirms the goals of liberal education, and pursues studies of how the integration of basic historical, sociological and philosophical dimensions into science instruction can improve science learning and learning about science.

The Group is staging a North and South America regional conference in Calgary in June 1997. And it is holding its Fourth International Conference in Pavia in September 1999.

The journal in the final number of each year reproduces a 'Golden Oldie' article on HPS and science and mathematics education. These are significant articles, but ones that are increasingly inaccessible to many readers. This volume contains a 1969 article by Noretta Koertge who is one of the handful of professional philosophers of science to write on science education matters. The tensions in curricular design that she writes of are still with us.

Reduced-cost subscription to *Science & Education* is available to members of the International History, Philosophy and Science Teaching Group. Currently this is US\$ 50 per year, US\$ 95 for two years, US\$ 135 for three years. This price includes membership of the group. Subscriptions run for the calendar year which constitutes one volume of four numbers.

It is no secret that the economic health of academic journals is directly related to their adoption by libraries. So also of course is the availability of the journal articles to present and future students and researchers. On both counts, recommending *Science & Education* to your institution's librarian would be most appreciated.

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